Abdeslam Jaafari

Sultan Moulay Slimane University, Morocco

How Pharmacogenomics, Epigenetics and Data Analysis could improve anticancer treatment

Pharmacogenomics, Epigenetics or Data analysis and Bioinformatics could play a vital key role to fight a dreadful disease like cancer. The goal of our presentation is to give more insights into the relationship between pharmacogenetics and drug response, the role of epigenetics modification in carcinogenesis and cancer therapy, and how could data analysis support understanding and predict the relationship between pharmacogenes-drug response. It has been confirmed that the patient genotype could highly impact therapeutic effects and/or adverse events of anticancer drugs in particular. Pharmacogenomics/Pharmacogenetics aims to evaluate the relationship between drug efficacy/toxicity of a given drug and its pharmacokinetics and pharmacodynamics. Proteins involved in all these mechanisms are encoded by what we call pharmacogenes. Thus, any mutation in those genes could lead to treatment failure and/or resistance of cancer cells to chemotherapeutics drugs. Consequently, we can optimize and improve anticancer drug efficacy and/or adverse effects by understanding the interaction between genome variation and drug response. Recently, next-generation sequencing technology led to the discovery of new genetic variants, like cytochrome P450 genes, ATP-binding cassette (ABC) transporters, and many others, related to anticancer therapy and cancer cell resistance, the major obstacle to successful anticancer treatment. On the other hand, as there is no doubt today that epigenetic modifications are involved in cancer pathogenesis, progress and prognosis, researchers are looking for how to treat cancer by fixing these epigenetic alterations. In fact, this way could provide good results since epigenetic modifications, unlike genetic mutations, are reversible. Bioinformatics and data analysis, by integrating network pharmacology-based prediction and experimental validation, could also help to give some vital information that can lead to elucidating the genome-drug response relationship to find the right drug for the right patient. Some public databases, algorithms, protein-protein interaction, and gene ontology have been used in this sense.

Recent Publications

1. Abdeslam Jaafari, Mostafa ellouali & Hassane Latrache Interfacial mechanisms involved in the interaction between Fusarium oxysporum f. Sp. Albedinis and date palm root Tarbiat Modares University Press Journal of Crop Protection Volume 10, Issue 3 (2021)

2. Abdeslam Jaafari, Souad Lekchiri & Hafida Zahir A Cross-Immunity between SARS-cov-2 and MERS-cov:Interest in Anti-SARS-cov-2 Serotherapy Development Using Dromedary Serum Infection Epidemiology and Microbiology Spring 2021, Volume 7, Issue 2

3. Abdeslam Jaafari, Safae Tankiouine & Mostafa Ellouali Study of Initial Adhesion of a Bacterium to Different Support Materials before and after Conditioning Film of Olive Oil-Mill Wastewater Advances in Bioscience and Biotechnology Aug. 10, 2020.

Biography

Abdeslam Jaafari is currently working as an Laboratory of Biological Engineering, Lab of Bioprocess-Bio interfaces in Sultan Moulay at Slimane University, Beni Mellal, Morocco.

Abdeslamjaafari@gmail.com